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(54) Title: **HYALURONAN (HA) ESTERIFICATION VIA ACYLATION TECHNIQUE FOR MOLDABLE DEVICES**

(57) Abstract: A series of novel, melt- or mold-processable HA esters with varying aliphatic chain lengths are synthesized from silyl HA-quaternary (quat.) ammonium salt complex (preferably silyl HA-CTA, a silylated HA complex with cetyltrimethyl ammonium salt). Introduction of aliphatic acyl groups, preferably acid chlorides, to disrupt the strong HA intermolecular bonding, is done via acylation. Acylation takes place at the oxygen of the trimethylsilyloxy group -O-Si(CH₃)₃ in the silyl HA-CTA by removal of trimethylsilyl groups therefrom. Optionally, crosslinking may be performed during the shaping/molding of the HA esters into a structure/device, or thereafter, if at all. Native HA can then be regenerated/recovered by saponification/ hydrolysis, removing acyl groups, -CH₃(CH₂)₁₀CO, and the cetyltrimethyl ammonium salt groups, -CTA, from HA ester. The structure/device of a preselected shape (e.g., porous or solid, bulk structure or fibers) may become a component of an assembly, a product that is further processed, integrated into another component (e.g., laminated, adhered, assembled, further shaped, chemically-intermixed/intermingled), and so on.

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